

Yale IT Systems Differential Scope of Work Matrix				
System	Designed By	Furnished By	Installed By	Notes
<i>Telecom Room Fit-Out Components</i>				
Cable Runway in Telecom Rooms	ICT Designer	Cabling Contractor	Cabling Contractor	
Telecom Grounding Busbars	ICT Designer	Cabling Contractor	Electrical Contractor	
Telecom Grounding Backbones	ICT Designer	Electrical Contractor	Electrical Contractor	
Telecom Bonding	ICT Designer	Cabling Contractor	Cabling Contractor	
Wall Plywood Backboarding	ICT Designer	Cabling Contractor	Cabling Contractor	
Cabling Penetration Sleeves, Floor and Wall, with Firestopping	ICT Designer	Cabling Contractor	Cabling Contractor	
Cabling Plant Equipment Racks and Vertical Managers	ICT Designer	Cabling Contractor	Cabling Contractor	
Category 6/6A Patch Panels, Horizontal Managers, and Cable Terminations	ICT Designer	Cabling Contractor	Cabling Contractor	
Category 6/6A Patch Cords	ICT Designer	Cabling Contractor	Cabling Contractor	
Optical Fiber Patch Cords	ICT Designer	Cabling Contractor	Cabling Contractor	
<i>Telecom Riser Cabling Distribution</i>				
Building Riser Conduits	ICT Designer	Electrical Contractor	Electrical Contractor	

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Riser Cabling - Copper Backbone	ICT Designer	Cabling Contractor	Cabling Contractor	
Copper Voice Termination Patch Panel	ICT Designer	Cabling Contractor	Cabling Contractor	
Riser Cabling - Optical Fiber, Singlemode and OM4 Multimode	ICT Designer	Cabling Contractor	Cabling Contractor	
Optical Fiber Termination Cabinets	ICT Designer	Cabling Contractor	Cabling Contractor	
Outside Plant Interbuilding Air Blown Fiber/Copper Backbones	ICT Designer	Cabling Contractor	Cabling Contractor	Cabling Contractor shall be Manufacturer Certified to provide the Air Blown Fiber distribution system.
Air Blown Fiber Tube Distribution Units, Tube Cables, Tube Splices	ICT Designer	Cabling Contractor	Cabling Contractor	Cabling Contractor shall be Manufacturer Certified to provide the Air Blown Fiber distribution system.
Outside Plant Communications Ductbank	ICT Designer/Site Civil Engineer	Electrical Contractor	Electrical Contractor	
<i>Horizontal Distribution</i>				
Corridor Cable Trays	ICT Designer	Electrical Contractor	Electrical Contractor	
Outlet Conduit and Device Backboxes	ICT Designer	Electrical Contractor	Electrical Contractor	
Floor Boxes and Poke Throughs	ICT Designer	Electrical Contractor	Electrical Contractor	
Open Top J-Hooks for Cabling Supports	ICT Designer	Cabling Contractor	Cabling Contractor	

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Category 6/6A Horizontal Cabling	ICT Designer	Cabling Contractor	Cabling Contractor	
Workstation Outlets/Faceplates/Jacks	ICT Designer	Cabling Contractor	Cabling Contractor	
Workstation Horizontal Category 6/6A and OM4 Fiber Patch Cords	ICT Designer	Cabling Contractor	Cabling Contractor	
Cable Plant Labeling	ICT Designer	Cabling Contractor	Cabling Contractor	
Cable Plant Testing	ICT Designer	Cabling Contractor	Cabling Contractor	
<i>Network Electronics Equipment</i>				
Network Equipment Racks	ICT Designer	Cabling Contractor	Cabling Contractor	
Rack Mounted PDU's	ICT Designer	Cabling Contractor	Cabling Contractor	
Rack Mounted UPS's	ICT Designer	Cabling Contractor	Cabling Contractor	
Telecom Room Network Switches	Yale IT	Yale IT	Yale IT	Does not include specialty systems switches such as IP Audiovisual or Sound Masking.
Telecom Room Voice Gateways	Yale IT	Yale IT	Yale IT	
Core Network Room Core Switching Equipment Upgrades	Yale IT	Yale IT	Yale IT	
Wireless Access Points (Wi-Fi 802.11ac/ax)	Yale IT	Yale IT	Cabling Contractor	
Wireless Access Points RF Predictive Study	ICT Designer or Yale IT	NA	NA	

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Wireless Access Point Enclosures	ICT Designer/Architect	Cabling Contractor	Cabling Contractor	
Telephone Handsets (Analog and VoIP)	Yale IT	Yale IT	Yale IT	
Building User PC Workstations	Yale IT	Yale IT	Yale IT	Does not include building systems operations workstations included in the project specifications.
<i>Distributed Antenna Systems</i>				
Site Assessment	RF ICT Designer	NA	NA	
RF Predictive Study	RF ICT Designer	NA	NA	
Head End Equipment	RF ICT Designer	DAS Contractor	DAS Contractor	
Telecom Room Active Hubs	RF ICT Designer	DAS Contractor	DAS Contractor	
Remote Units/Antennas	RF ICT Designer/Architect	DAS Contractor	DAS Contractor	Coordinate locations and mounting conditions with the project Architect.
Optical Fiber/Low Voltage Power Cabling	RF ICT Designer	Cabling Contractor	Cabling Contractor	
Wireless Coverage and Signal Strength Testing	RF ICT Designer	DAS Contractor	DAS Contractor	
<i>Two-Way Communication System for Area of Rescue</i>				
Conduit Rough-in and Device Backboxes	ICT Designer	Electrical Contractor	Electrical Contractor	
Area of Rescue Command Unit and Visual Indicator	ICT Designer	Electrical Contractor	Electrical Contractor	

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Area of Rescue Call Station	ICT Designer	Electrical Contractor	Electrical Contractor	
System Cabling	ICT Designer	Electrical Contractor	Electrical Contractor	
Command Unit Analog Telephone Line	ICT Designer	Cabling Contractor	Cabling Contractor	
System Building Signage	Architect	Building Signage Provider	General Contractor	
<i>Fire Alarm Voice Evacuation (FAVE) System</i>				
Building FAVE Panel	ICT Designer	Approved FAVE System Vendor	FAVE System Provider, Fire Alarm Contractor	
FAVE System Multimode Optical Fiber Patch Cords	ICT Designer	Approved FAVE System Vendor	Approved FAVE System Vendor	
<i>Mass Notification System (MNS) System</i>				
Building MNS Panel	ICT Designer	Approved MNS System Vendor	Approved MNS System Vendor	
MNS System Cabling	ICT Designer	Approved MNS System Vendor	Approved MNS System Vendor	
MNS System Site Speakers	ICT Designer	Approved MNS System Vendor	Approved MNS System Vendor	
MNS Central Station and Site Speaker Testing	ICT Designer	Approved MNS System Vendor	Approved MNS System Vendor	
<i>Security Systems Infrastructure</i>				

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Security Systems Conduit Rough-in and Device Backboxes	ICT Designer	Electrical Contractor	Electrical Contractor	
Electrified Door Hardware	Architect/Door Hardware Consultant/ICT Designer	General Contractor/Door Hardware Supplier	Installed by General Contractor/Terminations by Security Contractor	Electrified locks and exit devices with integrated card reader, door position switch, and request to exit switch shall be furnished and installed by the manufacturer certified Security Contractor.
Door Hardware Power Supplies	Door Hardware Consultant/ICT Designer	Security Contractor	Security Contractor	Where electrified door hardware is served by manufacturer specific power supplies, the power supplies shall be furnished by the General Contractor and documented in the project door hardware schedules.
Security System Pathways (Non-IP Network Based)	ICT Designer	Electrical Contractor	Electrical Contractor	Composite cables for access control doors shall be routed in segregated pathways away from Category 6/6A network cabling.
Security System Cabling (Non-IP Network Based)	ICT Designer	Security Contractor	Security Contractor	
Security System Device Terminations	ICT Designer	Security Contractor	Security Contractor	
Category 6 Network Cabling and Terminations	Security/ICT Designer	Cabling Contractor	Cabling Contractor	IP-based network connections and analog phone lines shall be provided for equipment and devices including but not limited to access control panels, IP security cameras, IP intercom stations, electronic keyboxes, and emergency call stations.
Fire Alarm System Interfaces, Relays, and Programming	Security/Electrical Consultant	Fire Alarm Contractor	Fire Alarm Contractor	

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Outdoor Site Emergency Telephone Concrete Base and Pole	Security/Site Civil Consultant	Electrical Contractor	Electrical Contractor	
Emergency Telephone 120V Blue Light	ICT Designer	Yale Public Safety	Electrical Contractor	
Custom Entry Card Reader Bollards	Architect/ICT Designer	General Contractor	Electrical Contractor	
Security Systems Equipment				
Access Control Panels and Wallfield Elevations	ICT Designer	Security Contractor	Security Contractor	Locations shall be coordinated within Telecom Rooms
Card Readers	ICT Designer	Security Contractor	Security Contractor	
Request to Exist Sensor	ICT Designer	Security Contractor	Security Contractor	
Door Position Switches	ICT Designer	Security Contractor	Security Contractor	
Door Management Alarms	ICT Designer	Security Contractor	Security Contractor	
Security Cameras and Mounts	ICT Designer/Architect	Security Contractor	Security Contractor/Electrical Contractor	Security camera locations shall be coordinated with the project Architect and reviewed by Yale Public Safety during project design phases.
Intrusion Detection Systems Devices	ICT Designer	Security Contractor	Security Contractor	
Video Intercom System	ICT Designer	Security Contractor	Security Contractor	
Emergency Call Stations	ICT Designer	Yale Public Safety	Security Contractor	Emergency call station locations shall be coordinated with the project Architect and reviewed by Yale Public Safety during project design phases.

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Building Alarm Panel to Central Station	ICT Designer	Security Contractor	Security Contractor	DMP Panel shall be provided at the Fire Alarm Main Panel or Fire Command Center with Cellular modem connection to Central Station
Building Alarm Panel Cellular Modem	ICT Designer	Security Contractor	Security Contractor	
Network Video Recording (NVR) Systems	ICT Designer	Security Contractor	Security Contractor	Coordinate storage capacity and requirements with Yale Public Safety during project design phases.
Electronic Keyboxes	Architect/ ICT Designer	Yale Facilities	General Contractor	Coordinate quantity and locations with Yale and Architect. Design wall blocking, ADA clearances, power, and network connections with design team during project design phases.
Security System Programming	Security Contractor	Security Contractor	Security Contractor	
System Testing and Training	Security Contractor	Security Contractor	Security Contractor	
<i>Audiovisual Infrastructure and Equipment</i>				
Conduit, junction boxes, floor boxes, wireways and other electrical (construction related) rough-in work pertaining to the installation of the AV systems	AV ICT Designer	Electrical Contractor	Electrical Contractor	AV Contractor will provide necessary plans and documentation to be integrated into the appropriate construction sets for coordination and implementation by other trades as necessary.
Power receptacles and related electrical requirements	Electrical Engineer	Electrical Contractor	Electrical Contractor	

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Network Connections	ICT Designer/AV Contractor/AV ICT Designer	Network Cabling Contractor	Network Cabling Contractor	AV Contractor to submit a Network Request spreadsheet of all network attached devices by location including Manufacturer, Model, Serial Numbers, MAC Addresses, Usernames, Passwords via the project to AVSD and Network Engineering.
AV Network Switches and Configuration	AV Contractor	AV Contractor	AV Contractor	Port List and Switch Configuration summary shall be provided to Yale IT. Laminated copy of switch port, VLAN and attached device should be kept with all network switches.
Yale Network Integration	Yale Data Network Operations	Yale Data Network Operations	Yale Data Network Operations	If not established, create and document AV VLANs for Control, Audio and Video as separate subnets. Provide IP and Subnet and other related network information to AVSD and AV Contractor. Configuration and connections necessary for Yale Data integration into AV systems.
Low Voltage Audiovisual Cabling	AV ICT Designer	AV Contractor	AV Contractor	
Audiovisual Cable Terminations	AV ICT Designer	AV Contractor	AV Contractor	
Ceiling speakers (with back boxes, transformers, and grilles)	AV ICT Designer	AV Contractor	AV Contractor	
Video Cameras	AV ICT Designer	AV Contractor	AV Contractor	
Audio Visual consoles and Audio Visual Equipment Cabinets	AV ICT Designer	AV Contractor	AV Contractor	
Lectern	AV ICT Designer	AV Contractor	AV Contractor	
Data / Video projector and ceiling mounting brackets	AV ICT Designer	AV Contractor	AV Contractor	

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Wall and ceiling mounted flat screen video displays	AV ICT Designer	General Contractor	General Contractor	
Wall mounted fixed projection screens	AV ICT Designer	General Contractor	General Contractor	
Ceiling mounted electric screens (recessed and surface mount)	AV ICT Designer	General Contractor	Installation and access hatches as required - General Contractor, Electrical - Electrical Contractor, Low Voltage Screen Control - AV Contractor	
Microphones	AV ICT Designer	AV Contractor	AV Contractor	
Control Systems - Hardware and Programming	AV ICT Designer	AV Contractor	AV Contractor	A description of each function of the control system shall be provided describing operation and system performance expectations. Integrate with existing monitoring or server platforms as necessary.
Control Interfaces - Touchscreens and physical controls	AV ICT Designer	AV Contractor	AV Contractor	All touch screen graphic user interfaces and physical controls must follow AVSD standards for design and functionality. The programmer will submit a functionality and usage narrative accompanied by screenshots of all User Interface elements.
Audio DSP Programming	AV Contractor	AV Contractor	AV Contractor	
AV System Documentation	AV ICT Designer	AV Contractor	AV Contractor	To include final versions of all previously submitted documentation
Video System Test Reporting	AV ICT Designer	AV Contractor	AV Contractor	A report of video devices tested and devices used to perform the test. All routes tested and validated.
Audio System Test Reporting	AV ICT Designer	AV Contractor	AV Contractor	A report of audio inputs and outputs tested and devices used to perform the test. All routes tested and validated.

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Control System Test Reporting	AV ICT Designer	AV Contractor	AV Contractor	A report of controls and behaviors tested. All common and detailed activity tested and validated.
Final Commissioning Report	AV ICT Designer	AV Contractor	AV Contractor	A report of each location and system certifying the systems, performance and practices meet design intentions, functionality requirements and note any exceptions. Distribute accordingly.
AV System User Acceptance Training	AV ICT Designer	AV Contractor	AV Contractor	
Project Close	AV ICT Designer	AV Contractor	AV Contractor	Attach all project documentation
Maintenance of AV System	NA	NA	AV Contractor	Proactive maintenance, firmware updates, and other regular service of equipment through a Service Level Agreement
AV System Troubleshooting	Owner		Service Now Ticket	Owner will work with AV Contractor or AVSD to resolve AV System functionality issues. This does not include operational assistance.